

V. REMARKS

Claims 1-6 are rejected under 35 U.S.C. 103(a) as unpatentable over the Admitted Prior Art (APA) in view of YAMAOKA (U.S. Patent No: 4,850,577). The Examiner believes that all of the features of these claims are either taught or suggested in the combination of these references.

The APA discloses a metal melting furnace including a metal melting furnace having a preheating flue provided on its upper end with a material inlet opening through which a meltable material is introduced in the preheating flue and, on its lower end, with an inclined hearth. The meltable material such as metal is introduced in the preheating flue and is heated and molten by a melting burner which is oriented toward the lower end of the preheating flue. The molten metal is introduced in a molten metal reservoir through the inclined hearth. The temperature of the molten metal in the reservoir is maintained at a predetermined value by a temperature maintaining burner. A meltable material holder having an open lower end is provided in the preheating flue so that there is a gap between the meltable material holder and an inner furnace wall of the preheating flue that is located on the side opposite to the melting burner.

YAMAOKA teaches a melting and holding furnace that includes a melting chamber in which material is melted, a well, a holding chamber disposed between the melting chamber and the well in which a molten material is maintained at a selected temperature. A partition wall is disposed between the melting chamber and the holding chamber. A plurality of submerged banks project from a bottom of the holding chamber and extend transversely of a line linking the melting chamber and the well. The partition wall defines a communicating bore below a melt surface for allowing molten material to flow from the melting chamber to the holding chamber. A hot blast opening above the melt surface allows hot blast exhaust gases to flow from the holding chamber to the melting chamber, thereby defining a portion between the hot blast opening and the communicating bore which functions as a slag barrier.

Claim 1 is directed to a metal melting furnace including a preheating flue which is provided on its upper portion with a meltable material inlet opening and on its lower portion with an inclined hearth and a material melting burner which is oriented toward the lower portion of the preheating flue, a molten metal reservoir and a temperature maintaining burner which is provided in the molten metal reservoir so that a meltable material which is introduced in the preheating flue is heated and melted by the material melting burner and is moved along and on the inclined hearth into the molten metal reservoir in which the temperature of the molten metal is maintained by the temperature maintaining burner. Claim 1 recites that a separation wall is provided between the inclined hearth and the molten metal reservoir to define a molten metal processing portion. Claim 1 further recites that said separation wall is provided with a connecting passage for the molten metal between the molten metal reservoir and the molten metal processing portion at a height level higher than a bottom surface of the molten metal processing portion with said separation wall being provided on its upper portion with an exhaust gas passage which permits exhaust gas discharged from the molten metal reservoir to pass therethrough.

The characteristic components of the present invention as recited in claim 1 are as follows:

- (A) A separation wall is provided between the inclined hearth and the molten metal reservoir to define a molten metal processing portion;
- (B) Said separation wall being provided with a connecting passage for the molten metal, between the molten metal reservoir and the molten metal processing portion, at a height level higher than a bottom surface of the molten metal processing portion;
- (C) Said separation wall being provided on its upper portion with an exhaust gas passage which permits exhaust gas discharged from the molten metal reservoir to pass therethrough; and
- (D) An inspection opening with a door is provided in a furnace wall surface to open into the molten metal processing portion.

In comparison to YAMAOKA, firstly, as mentioned above in component (A), the present invention has the 'Separation wall' which is provided between the inclined hearth and the molten metal reservoir to define the molten metal processing portion. That is to say, the molten metal reservoir and the molten metal processing portion are divided by the separation wall. This characteristic feature is not equipped in YAMAOKA. 'Submerged banks' in YAMAOKA are submerged in melting metal and therefore they cannot be considered 'separation walls'.

Secondly, as mentioned above in components (B) and (C), the 'separation wall' in the present invention permits molten metal to flow by only the connecting passage for the molten metal' on lower portion of the separation wall between the molten metal processing portion and the molten metal reservoir, and permits to flow exhaust gas from the molten metal reservoir to the molten metal processing portion by only the 'exhaust gas passage on upper portion of the separation wall. On the other hand ,YAMAOKA does not disclose these 'connecting passage for the molten metal and exhaust gas passage'. As long as YAMAOKA does not have a separation wall, such compositions are impossible.

Finally, as mentioned in component (D), the molten metal processing portion in the present invention provides the inspection opening with the door' on the furnace wall surface. YAMAOKA does not have such a composition.

It is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests the features of claim 1 as discussed above. Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to combine the features of the applied art because such combination would not result in the claimed invention. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claims 2-6 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

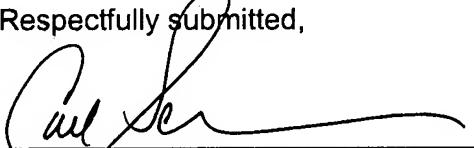
Withdrawal of the rejection is respectfully requested.

Newly-added claim 7 also includes features not shown in the applied art. Claim 7 is substantially similar to claim 1 except that the molten metal processing portion is further defined as being "in a form of a chamber disposed between the separation wall and the inclined hearth." It is respectfully submitted that this added feature is shown in the drawing figures and therefore no new matter has been added to the application.

In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,



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